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IMPROVEMENT AND DEVELOPMENT OF A TRADITIONAL BUILDING MATERIAL : "SAHARA GYPSUM"

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IMPROVEMENT AND DEVELOPMENT OF A TRADITIONAL BUILDING MATERIAL: "SAHARA GYPSUM".

By
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SUMMARY

In the Sahara, a local material, namely Gypsum, is widely used for building purposes.

It has exceptional properties as regards thermal insulation which is a boon in a hot, dry climate, and the Organisation Commune des Regions Sahariennes (O.C.R.S.) felt obliged to contribute considerably to its improvement and extended use in traditional buildings.

Many local craftsmen are skilled in working the "Timchent" or gypsum hydrate. It is found in isolated patches in limestone or else in lenticular lodes spreading horizontally in beds, probably caused by more or less extensive deposits of "chotts" that were formed originally in dips (salt lakes).

Calcining is carried out in kilns buried in the ground. Stones and coal residue are removed afterwards.

The burnt "Timchent" is then pulverised on a hard surface. Of the resulting powder about 20% consists of particles over 2mm and approximately 35% under 0.1 mm. Setting time is extremely short, less than a minute, and requires dexterity on the part of the user.

With a view to qualitative improvement and increased production of a material less coarse than "Timchent", the O.C.R.S. took the following action:

(a) Construction of a modern factory to process gypsum.

An agreement was signed in 1958 between the O.C.R.S. and a financial group (P.L.A.T.N.A.), and a factory was built at NOUMERAT, 20 km south of GHARDAIA.

Owing to the exceptionally high degree of purity of local gypsum deposits, a product of excellent quality can be obtained there.

Production capacity is 20,000 metric tons per year.

(b) Furthering investigations, both theoretical and practical, in order to learn more of the possibilities of available gypsum deposits and to devise methods for the prefabrication of standard units.

To this end agreements were signed with P.L.A.T.N.A., the S.E.P.P. (Société d'étude de procédés de préfabrication), the C.E.B.T.P. (Centre d'études du Bâtiment et des Travaux Publics).

(c) Erection of experimental buildings both in order to test modern methods of construction and for demonstration to future housing applicants (by agreement with P.L.A.T.N.A. and C.E.B.T.P.).

(d) Helping to train workers in the specialised technique of plaster work.

To this end a decision was taken to set up a center for the training of adult workers on a site very close to the plaster factory at NOUMERAT.

The results of this action are examined briefly in the official communication and in greater technical detail in an original memorandum to which the reader may refer.

We must, however, report here the encouraging results obtained in a way that had not been explored previously, viz. by calcining gypsum in road builders' drying kilns.

The first attempt at burning powdered gypsum was carried out between TOUGGOURT and OUARGLA in May 1959 at the initiative of the O.C.R.S. and the C.E.B.T.P. The kiln used was a "Super maintenance plant" normally employed in drying road aggregate prior to coating with asphalt. In the following year several 100 tons of gypsum were burnt at Hassi-Messaoud in a "Utility" kiln with an output of 30 t/day. Since October 1960, a systematic study has been carried out at OUARGLA concerning the possibilities of burning gypsum found locally in a NEVEU road kiln of rather lower output and therefore cheaper in price.

The aim is to develop an interest in "industrial craftsmenship" amongst the local population, because there is no doubt that the considerable distances separating built-up areas in the Sahara form an almost unsurmountable obstacle to the marketing of finished articles made in modern factories; as they are expensive to build, they can be profitable only if they are producing goods of some importance, which obviously limits their number. As, on the other hand, the average income of an inhabitant of the Sahara is still rather low, to bring about any real improvement in present building methods the local builder must be supplied with products of good quality at an acceptable price, which is only possible by burning locally mined gypsum.

Efforts should continue in this direction and the marketing of a product particularly well adapted for its purpose, is to be welcomed.

At the same time an imaginative effort is required, both in order to diversify the prefabricated units put at the disposal of builders, as well as to resolve some difficulties in using them; gypsum cannot be a universal substitute for other plaster materials in certain specific applications.

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